

# Thatcham 1<sup>st</sup> Sight

## Mercedes SL Roadster



### Summary

Not an extensive model range, but impressive and advanced technology nonetheless. Trim specifications include 3 different types of wood, 2 types of aluminium, or 2 types of carbon fibre for the interior. The body has 12 colour choices. Whilst not a volume model, with UK sales annually not much more than a 1000, it could represent a challenge in repair

#### MANUFACTURERS:

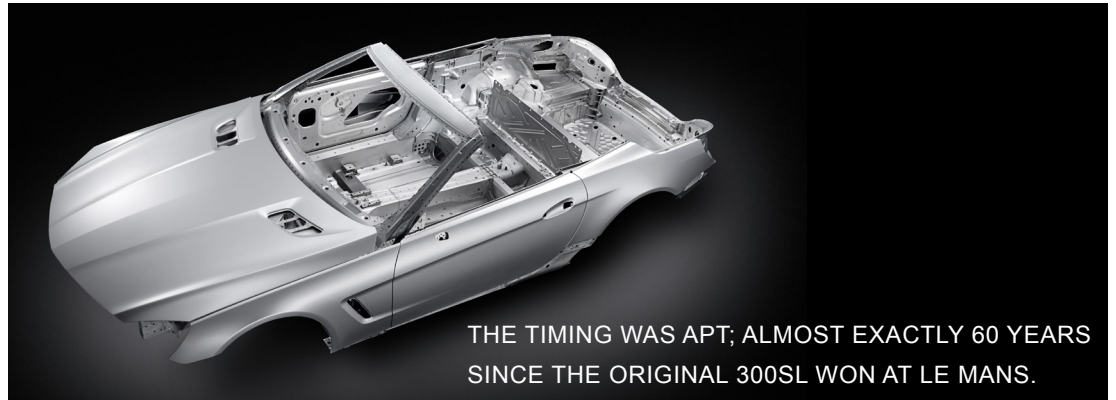
ALFA ROMEO  
AUDI  
BENTLEY  
BMW  
CADILLAC  
CHEVROLET  
CHRYSLER/JEEP  
CITROEN  
DACIA  
FIAT  
FORD  
GEELY  
GREAT WALL  
HONDA  
HYUNDAI  
INFINITI  
ISUZU  
JAGUAR  
KIA  
LAND ROVER  
LEXUS  
LOTUS  
MAZDA  
MERCEDES BENZ  
SAIC MG  
MINI  
MITSUBISHI  
NISSAN  
PEUGEOT  
PORSCHE  
PROTON  
RENAULT  
ROLLS ROYCE  
SEAT  
SKODA  
SSANGYONG  
SUBARU  
SUZUKI  
TATA  
TOYOTA  
VAUXHALL  
VW  
VOLVO  
OTHERS

#### OTHER CAT.:

REPAIR  
SAFETY  
GENERAL

## Mercedes SL Roadster

Mercedes Benz has released the 6th generation SL-Class roadster (codename R231). Two models are available at launch, the SL350 and the SL500, with AMG variants due later in the year.



Though it is the 6th in this line, it is no evolution of the previous model, being a fully aluminium structure on a whole new platform, with lots of other new technologies throughout the vehicle. This is a first for a series production Mercedes Benz.

### Body:

The Bodysell is almost totally aluminium, being constructed at Bremen in preparation for the plant to be ready and able to build the aluminium SLC too. Novelis supplied the material: 89% aluminium, cast, stamped, and extruded, that has enabled an overall weight reduction of 125kg. The joining techniques include friction stir welding, together with bonding and bolts/rivets.

But despite the weight loss Mercedes claim the body is stronger and 20% stiffer than before. The sill members are long single 7-chamber extrusion moulded aluminium for strength and rigidity, linked to a reinforced sheet aluminium tunnel (with varying material thickness), through an extruded hollow floor panel.

Ultra High Strength Steel (being just 8% of the structural material) reinforces the front screen posts and the roof frame for safety and strength as a roadster, and the rear floor includes magnesium. Although aluminium is the material of choice throughout the exterior panels, the boot lid is SMC composite on a steel frame.

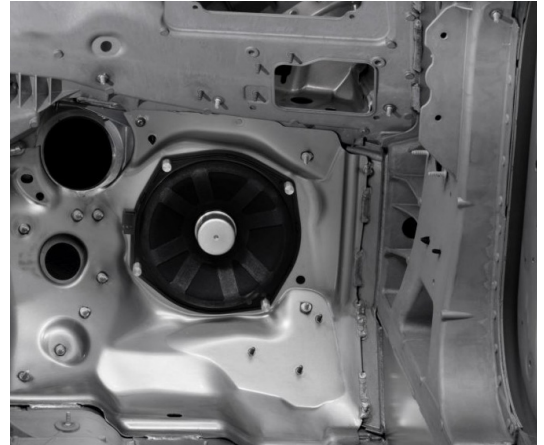
The rear spare wheel well is made of recycled material, and the entire structure of the SL enables use of recycled aluminium giving an impressive 80% saving in energy for material production.

For impact energy absorption the front axle carrier is integrated into the structure as an additional load path.

The fuel tank is located above the rear axle in a cast magnesium bulkhead impact protection zone.

The roof comes in 3 versions: painted, glass, or panoramic vario-roof. All have a magnesium frame for further weight reduction. The Magic Sky Control gives push button control of the glass roof tinting from clear to shaded with reduced UV intrusion.





### Powertrains:

The SL350 has a BlueDIRECT engine that is a 306bhp V6, and is 30% more economical than before, and the SL500 gets a 435bhp V8 that benefits from twin-turbos. This too has made significant economy gains. Both are longitudinal with predictably impressive performance; both being electronically limited to 155mph. Both also use the 7-speed automatic transmission.

Safety Features include Pre-Safe that pre-tensions seat belts and prepares head restraints if it detects a risk of an impact, and initiates braking. It also ensures doors are unlocked for easier evacuation after an impact. The Adaptive Brake System ensures optimal braking by drying the brakes in the wet, and flashes the brake lights during emergency braking to warn following vehicles.

### Other technology:

Mercedes has given the roadster the Magic Vision Control wash/wipe system as standard. This heats the wiper blades and fluid lines to prevent snow/ice from building up when required, and reduces the amount of water and restricts it to the downward wiper sweep to avoid spray into the vehicle interior when the roof is lowered. Consequentially this allows a smaller washer bottle to be used, further reducing weight.

The front windscreen has an acoustic film to absorb sound vibrations for a quieter ride.

A novel approach has been used for the FrontBass music system. The bass loudspeakers are located into the front firewall rather than the doors, reducing disruptive vibrations, and allowing for the cavities within the front chassis structure to be used as resonance chambers.

Hands Free Access is a contactless system for operating the boot lid, being operated by the driver moving their foot near the rear bumper, giving fully automatic opening and closing.

All the speakers are adjusted automatically by the amplifier for when the roof is open or closed.



## Thatcham ACTIONS...

Thatcham do not plan a research project but have sufficient aluminium expertise to advise and support.